

2021-22 STMS Undergraduate Stage 2 & 3 Module Handbook

16 School of Engineering and Digital Arts

EL600		Project				
Version	Campus	Term(s)	Level	Credit (ECTS)	Assessment	Convenor
1	Canterbury	Whole Year	H	45 (22.5)	95% Exam, 5% Coursework	
1	Canterbury	Whole Year	H	45 (22.5)	82% Project, 18% Coursework	
1	Canterbury	Whole Year	H	45 (22.5)	95% Project, 5% Coursework	
1	Canterbury	Whole Year	H	45 (22.5)	100% Coursework	
1	Canterbury	Whole Year	H	45 (22.5)	100% Project	

Contact Hours

34 Contact Hours including lectures and weekly supervisions.

416 Independent Study Hours.

450 Total Study Hours

Learning Outcomes

1. Execute a substantial piece of independent design or development engineering work
2. Write a scientific report based on the research, development and evaluation they have conducted
3. Formally present their work to individuals and groups

Method of Assessment

100% Project

Preliminary Reading

Project Management, Baguley, P (2008) Publisher: Teach Yourself (London)

ISBN-10: 0340968184, ISBN-13: 9780340968185

Specific reading materials will be suggested by project supervisor

Synopsis >*

Introduction to the project, research techniques, poster design, report structure and writing.

2021-22 STMS Undergraduate Stage 2 & 3 Module Handbook

EL639 Video Games Development						
Version	Campus	Term(s)	Level	Credit (ECTS)	Assessment	Convenor
2	Canterbury	Autumn	H	15 (7.5)	100% Coursework	

Contact Hours

Total contact hours: 30
Private study hours: 120
Total hours: 150

Department Checked

29/03/2018

Learning Outcomes

On successfully completing the module students will be able to:

1. Demonstrate a thorough understanding of game design theory and creative practice in the field of computer game development
2. Understand and apply principles of computer game design workflow to the production of a game
3. Critically analyse technical and usability issues associated with games design and development.

Method of Assessment

Main assessment methods; 100% Coursework eg:
(20%) Workshop exercises – mini game development
(60%) Video game design and development – a fully functioning game prototype
(20%) Video presentation – a short video on game design reflection

Preliminary Reading

Lintrami, T (2017) Unity 2017 Game Development Essentials - Third Edition, Packt Publishing
Thorn A (2017) Mastering Unity 2017 Game Development with C# - Second Edition: Create professional games with solid gameplay features and professional-grade workflow, Packt Publishing
Salen K. and Zimmerman E. (2003) Rules of Play: Game Design Fundamentals. MIT Press, ISBN-13: 978-0262240451
Crawford, C (1984) The Art of Computer Game Design ASIN: B0052QA5WU

Restrictions

None

Synopsis *

This module is concerned with a range of topics in video game design and development, including game physics, AI, level design, player behaviour, game rules and mechanics, as well as user interfaces. This module introduces students to game development using industry-standard software tools.

2021-22 STMS Undergraduate Stage 2 & 3 Module Handbook

EL667		Embedded Computer Systems				
Version	Campus	Term(s)	Level	Credit (ECTS)	Assessment	Convenor
1	Canterbury	Whole Year	H	15 (7.5)	65% Exam, 35% Coursework	

Contact Hours

Total contact hours: 25
Private study hours: 125
Total study hours: 150

Learning Outcomes

On successfully completing the module students will be able to:

1. Demonstrate an understanding of the design and operation of embedded systems;
2. Demonstrate an understanding of real time software and hardware system requirements;
3. Demonstrate practical experience of embedded systems based on case studies and laboratory experiments.

Method of Assessment

Examination 65%
Coursework 35%

Preliminary Reading

Core Text

- Shaw, AC (2001) Real-time systems and software, John Wiley, New York, Chichester
- Simon, DE (1999) Embedded software primer, Addison Wesley, Boston, London
- Qiu, Meikang, Li, Jiayin (c2011) Real-time embedded systems: optimization, synthesis, and networking, CRC, Taylor & Francis [distributor], Boca Raton, Fla, London

Pre-requisites

Pre-requisite for Computer Science students selecting this module as an option:
COMP5270 - Operating Systems and Architecture

Synopsis *

This module introduces the theory and practice of employing computers as the control and organisational centre of an electronic or mechanical system, and examines issues related to time critical systems. It also provides exposure to practical embedded systems design through practical work, with one assignment exploring the ideas of real-time operating systems introduced in the lectures and a second using a microcomputer programmed in 'C' to control the ignition timing of a simulated petrol engine.

EL677		Digital Communication Systems				
Version	Campus	Term(s)	Level	Credit (ECTS)	Assessment	Convenor
1	Canterbury	Whole Year	H	15 (7.5)	85% Exam, 15% Coursework	

Contact Hours

Total contact hours: 36
Private study hours: 114
Total study hours: 150

Department Checked

06/08/2018

Learning Outcomes

1. Demonstrate an understanding of information theory, error coding and its application in modern communication systems;
2. Demonstrate an understanding of communication network architectures and protocols.
3. Demonstrate an understanding of the principles of optical communication systems and their performance

Method of Assessment

Examination 85%
Coursework 15%

Pre-requisites

EENG5700 (EL570) Communication Principles

Synopsis *

Information theory and Shannon capacity, information measure and mutual information, source coding and channel coding/decoding, multiuser communications.

Network architecture, topology. Access networks, voice and data. Transport networks and multiplexing. Local area networks, Ethernet, WiFi. TCP/IP networks and the Internet.

Optical communication systems. Propagation in optical fibres. Sources (LEDs, laser), modulation. Photodiodes, receivers. Optical components. System power budgets, noise and dispersion.

2021-22 STMS Undergraduate Stage 2 & 3 Module Handbook

EL885 Research Methods and Project Design for Mobile Apps						
Version	Campus	Term(s)	Level	Credit (ECTS)	Assessment	Convenor
2	Canterbury	Whole Year	M	15 (7.5)	100% Coursework	
2	Canterbury	Spring	M	15 (7.5)	100% Coursework	

Contact Hours

Total contact hours: 20
Private study hours: 130
Total study hours: 150

Department Checked

14/11/2018

Learning Outcomes

- 1 Carry out a comprehensive literature survey on a selected topic using library and electronic information sources.
- 2 Identify the current status of a particular research area and define the state-of-art in that research area.
- 3 Identify and formulate further research, which could usefully be undertaken in a defined area of technology.
- 4 Plan a research project, including the definition of objectives, project management, experimental design and data collection and processing within time and resource constraints.
- 5 Undertake research using logical and effective methodologies.
- 6 Use common software packages for project management and presentation.
- 7 Communicate with peers by way of conference and journal publications.
- 8 Understand general issues concerning research including IPRs and research ethics.

Method of Assessment

Assignment (10%)
Assignment (80%)
Assignment (10%)

Pre-requisites

None

Progression

Restrictions

None

Synopsis *

LITERATURE SURVEY

Surveys using networked electronic information sources, on-line databases, inter-library loan facilities, private communications, etc. Identification of a technical area worthy of research, definition of the state-of -the-art in a given field, definition of the research project, and research proposals. Patent search.

GENERAL ISSUES AND PRACTICE

Choosing the field of interest. Concept of originality. Research theories: background theory, focal theory, data theory. Contribution towards knowledge. Types of research project (blue sky, basic, applied and experimental research). Research uncertainty. Risk management. Research approaches.

RESEARCH PROJECT MANAGEMENT

Time management. Resources management. Project management software (MS Project). Use of logbooks. Data management. Data security. Team working skills.

RESEARCH PROCESS

MSc research projects. MPhil/PhD research projects. Academic research and industrial R&D. Project planning, proposals and budgeting. Design of experimental tests. Modelling and simulation.

RESEARCH PUBLICATIONS

Structure, content and procedures. Project reports and theses. Journal and conference papers. Technical presentations. Use of references. Writing up of abstract, introduction and conclusions. Submission, refereeing and amendments. Effective use of figures, drawings and tables. MS WORD, ENDNOTE and LATEX.

PRESENTATIONS OF RESEARCH RESULTS

Objectives and structure. Audience analysis. Rehearsal and delivery. Design of visual aids. Use of computerized projection facilities. Multi-media approach. Poster design and poster presentation. Handling questions.

INTELLECTUAL PROPERTY RIGHTS

Patents, patent rights and know-how. Copyright and copying. Design rights and registered designs. Research contracts and agreements. Confidentiality agreement.

RESEARCH ETHICS

Ethics in engineering research. Research supervision. Modelling and simulation versus real experimental work. Processing and presentation of experimental data. Obfuscation in writing up research papers.